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EXAMINER

RAMILLANO, LORE JANET

| ART UNIT | PAPER NUMBER |
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1743

DATE MAILED: 04/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/528,954

Applicant(s)

LEHMANN ET AL.

Examiner

Lore Ramillano

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 17-30 is/are rejected.
- 7) ☒ Claim(s) 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/25/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. In applicant's preliminary amendment filed on 3/23/05, claims 1-16 were cancelled. Claims 17-30 are pending.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to clearly indicate what part of the device constitutes "the detection fields" and "the flow-through measurement chamber as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If

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the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 17 is objected to because of the following informalities: Claim 17 is objected to because it lacks the term "comprising," which is necessary to determine what part of the claim represents the preamble. Claim 17, lines 10-11, should be changed to "or is in the form of a waveguide layer and located on the semiconductor chip." The format of claim 17 should be changed to clearly indicate the structural limitations of the device. Appropriate corrections are required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

5. Claims 17-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

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Claim 17 is indefinite for the following reasons: (1) what part of the claim is part of the preamble?; (2) is the term "it" (line 4) referring to the "individual receptors"?; (3) what term(s) is being "characterized by the fact" (line 9)? The device?; and (4) the format of claim 17 is indefinite because it does not clearly indicate the structural limitations of the device.

Claim 18 is indefinite because it is unclear what the following means: "the topography of the semiconductor chip, . . . is realized"? "The topography of the semiconductor chip" lacks antecedent basis.

Claim 19 is indefinite because it is unclear what the following means: "*has structures* for an electronic circuit"?

Claim 20 is indefinite because it is unclear what "*the negative shape* of the semiconductor chip" means. It is also unclear what the index of refraction of the intermediate layer since the optical index of refraction of the waveguide is not clearly claimed.

Claim 21 is indefinite because it is unclear what applicant means by claiming that the "intermediate layer is *realized* in the form of an adhesive coating"? Does applicant mean that the intermediate layer is an adhesive coating, which is made of a polymer?

Regarding claim 22, the word "means" is preceded by the word(s) "the waveguide is connected with the semiconductor by" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as required

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by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

Claim 23 is indefinite because it is unclear what applicant means by claiming that the “waveguide is *realized* in the form of a thin-film layer”? Does applicant mean that the waveguide is a thin-film layer, which is made of a transparent polymer material (ie. polystyrene)?

Claim 25 is indefinite because it is unclear what applicant means by claiming that the “optical radiation source is *realized* in the form of a semiconductor radiation source”? Does applicant mean that the optical radiation source is a semiconductor radiation source?

Claim 26 is indefinite because it is unclear whether “*and*” should be inserted between the terms “in particular has at least one prism,” and “an optical injection system comprises of at least one prism and an optical lattice and/or a deflecting mirror.” Also, the term “*realized*” is indefinite.

Claim 27 is indefinite because the following term is unclear: “a detection field of another radiation receiver.” Does applicant mean that the radiation receivers are located *within* different detection fields? Or are some of the radiation receivers and detection fields spaced apart and some are located within each other?

Claim Interpretation

As to claims 17, 19, 26, and 30, which contain intended use terms, the Examiner will interpret these claims in light of the structural elements that are

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disclosed and not for their intended use as stated after the terms "for," "to be," and "used for." The terms, "for," "to be," and "used for," are intended use terms. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

The Examiner has applied references, which are capable of meeting these functions. A structure, which is capable of providing the intended use, is considered to meet the limitation of intended use recited in a claim to a device or an apparatus.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. **Claims 17, 19-22, 27, 28, and 30** are rejected under 35 U.S.C. 102(b) as being anticipated by Hefti (US 6287874).

Hefti discloses a device for detecting a least one ligand contained in a sample (column 3, lines 13-15) comprising a waveguide, which is integrated with the semiconductor chip (or substrate), is situated where several detection fields are located, and is connected by the semiconductor layer by at least one bonding

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point (Fig. 15C; column 38, line 61 to column 39, line 6); individual receptors that are directly or indirectly immobilized and that form a specific bond with a ligand (Fig. 15C, 1724); at least one optical source of radiation (Fig. 15C, 1725); and at least one radiation receiver (Fig. 15D, 1753b, 1753d, 1754b, 1754d), which are integrated with the semiconductor chip (Fig. 15C, 1720).

Hefti further discloses a device comprising a semiconductor chip, which has structures (Fig. 15B, 1712-1714); an intermediate layer (Fig. 3, 330), which is between the waveguide and the semiconductor chip, has an adhesive coating, and has a negative shape (column 22, lines 16-20); and at least one receptor located in the interior cavity of the flow-through measurement chamber, which has at least one inlet opening and one outlet opening (column 20, line 64 to column 21, line 2).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. **Claims 18, 23, 24, and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hefti in view of Budach et al. (US PG Pub. 2002/0135780).

Hefti does not specifically disclose a boundary surface running between two planes, a waveguide made of a transparent polymer material and formed by a metal oxide layer, and an optical injection system, which has at least one prism, optical lattice, and/or deflecting mirror.

Budach et al. disclose an embodiment, which has a boundary surface running between two planes (Fig. 2); a waveguide, which is made of a transparent polymer material and formed by a metal oxide layer ([0109]-[0110]); and an optical injection system, which has at least one prism, optical lattice, and/or deflecting mirror (Fig. 6).

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Hefti and Budach et al. are analogous art because they are from the same field of endeavor, which involves antibody chip technology. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Hefti with the limitations of Budach et al., as stated above, because having these limitations would prevent the beam of laser light from transmitting through the waveguide layer. Thus, the beam of laser light would be reflected and confined within the waveguide layer. (Budach et al., [0111]).

12. **Claim 25** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hefti in view of Budach et al., as applied to claims 18, 23, and 26 above, and further in view of Fiberchem, Inc. (WO 9706422).

Hefti does not specifically disclose an optical radiation source integrated into a semiconductor chip.

Fiberchem, Inc. disclose an optical radiation source integrated into a semiconductor chip (Abstract).

Hefti and Fiberchem, Inc. are analogous art because they are from the same field of endeavor, which involves a waveguide integrated on a chip. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Hefti with the limitation of Fiberchem, Inc., as stated above, because having various geometries of the light source with a chip are known in the art (Fiberchem, Inc., Abstract).

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13. **Claim 29** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hefti in view of Budach et al., as applied to claims 18, 23, and 26 above, Hefti in view of Fiberchem, Inc., as applied to claim 25 above, and further in view of Woudenberg et al. (US 6126899).

Hefti does not specifically disclose a Peltier element.

Woudenberg et al. disclose a Peltier element (column 21, lines 40-54).

Hefti and Woudenberg et al. are analogous art because they are from the same field of endeavor, which involves a device to test for particular analytes in a sample. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Hefti with the limitation of Woudenberg et al., as stated above, because having the Peltier device would enable Hefti to control the temperature within his device (Woudenberg et al., column 21, lines 40-54).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lore Ramillano whose telephone number is (571) 272-7420. The examiner can normally be reached on Mon. to Fri. 8:30a to 5:00p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lore Ramillano
Examiner
Art Unit 1743

LR
4/7/06


JEFFREY SNAY
PRIMARY EXAMINER